METHODS AND COMPOSITIONS FOR CO-STIMULATION OF IMMUNOLOGICAL RESPONSES TO PEPTIDE ANTIGENS

ABSTRACT OF THE DISCLOSURE

Method for eliciting an immune response in a vertebrate subject are provided involving administration of a peptide antigen to the subject in a coordinated vaccination procedure that also involves administration of a non-viral vector that encodes a T cell co-stimulatory molecule. The peptide antigen contains at least one T cell epitope and may include an epitope of a tumor antigen or an antigen of a viral or non-viral pathogen. Epitopes from tumor antigens may represent fragments or partial amino acid sequences of p53, *ras*, rb, mcc, apc, dcc; nfl; VHL; MEN1, MEN2, MLM, Her-2neu, CEA, PSA; Muc1, Gp100, tyrosinase, or MART1 proteins, and often span a mutation identified in the tumor antigen. Various viral antigens may be selected, for example antigens identified in a human immunodeficiency virus (HIV), hepatitis B virus (HBV), herpes simplex virus (HSV) or human papilloma virus (HPV), for production of peptide antigens corresponding to immunogenic epitopes of the viral antigen. The peptide antigen is administered simultaneously or sequentially with administration of the vector encoding the co-stimulatory molecules. Co-stimulatory molecules useful for coordinate administration with peptide antigens to elicit an enhanced T cell-mediated immune response may be selected from B7-1, B7-2, B7-3, ICAM1, ICAM2, LFA1 or LFA2. The peptide antigen and non-viral vector encoding the T cell co-stimulatory molecule are administered to proximal target sites selected from the same, or closely-adjacent, intradermal, subcutaneous, mucosal or intratumoral sites.